

ABSTRACT

Software Define Network (SDN) is a way to speed up the configuration process so that it is easier and more efficient. SDN network configures all devices in the network through only one media controller server, besides that the Virtual Private LAN Service (VPLS) is a service that can connect several Local Area Networks (LAN) or as a bridge connecting all VLANs in the LAN area. Therefore, this study aims to analyze how the SDN network performance uses VPLS with an ONOS controller. Data retrieval parameters are delay, jitter, throughput and packet loss, packet sending using D-ITG with UDP protocol from PC 1 to PC 3. This study uses two scenarios, namely the first scenario with a bandwidth of 10 Mbps and the second scenario with unlimited bandwidth, sending packages using D-ITG from PC 1 to PC 3, while PC 2 and PC 4 are used as traffic loads, using iPref with five different variants namely 2 Mbps, 4 Mbps, 6 Mbps, and 8 Mbps. 10 Mbps bandwidth when the throughput exceeds the bandwidth, the resulting throughput will be smaller on the destination side by 4831.1 Kbps, the delay which increases by 16,610 ms, increasing the value of jitter by 3,773 ms. Bandwidth cannot accommodate data packets, so overload in the network results in packet loss of 24.94 The results of measurements of unlimited bandwidth throughput when added to the burden of traffic are increasing slowly.

Keywords: *Software Define Network, Virtual Private LAN Service, ONOS Controller, Virtual Local Area Network.*